

National Institute
of Standards and Technology



National Voluntary
Laboratory Accreditation Program

ISO/IEC GUIDE 25:1990
ANSI/NCSL Z540-1-1994
ISO 9002:1987

Scope of Accreditation



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CALIBRATION LABORATORIES

NVLAP LAB CODE 200127-0

DAVID L. ELLIS CO., INCORPORATED

310 Old High Street, P.O. Box 592

Acton, MA 01720-0010

Mr. Robert A. Ellis

Phone: 978-897-1795 Fax: 978-897-0844

E-Mail: dlellisco@aol.com

URL: <http://www.hardness-testblocks.com>

MECHANICAL

NVLAP Code: 20/M13

Calibration of Test Blocks

<i>Hardness Scale and Range</i>	<i>Best Uncertainty (\pm) in Rockwell Points^{notes1,2}</i>	<i>Remarks</i>
HRA Steel Scale		
80	0.13	
64	0.21	
HRB Scale		
84	0.55	
40	0.92	
HRC Scale		
65	0.30	
45	0.32	
26	0.37	

September 30, 2003

Effective through

A handwritten signature in black ink that reads "David T. Alderman".

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DAVID L. ELLIS CO., INCORPORATED

HRD Scale

71	0.08
46	0.08

HRE Scale

100	0.54
77	0.31

HRF Scale

96	0.55
78	0.52

HRG Scale

91	0.16
44	0.67

HRH Scale

102	0.41
84	0.45

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DAVID L. ELLIS CO., INCORPORATED

HRK Scale

96	0.29
54	0.49

HRL Scale

123	0.12
102	0.27

HRM Scale

118	0.41
82	0.52

HRP Scale

112	0.34
59	0.50

HRR Scale

127	0.20
113	0.27

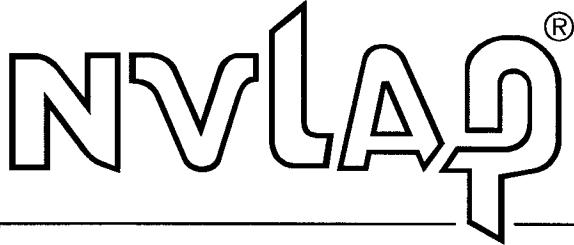
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DAVID L. ELLIS CO., INCORPORATED

HRS Scale

124	0.05
100	0.78

HRV Scale

121	0.25
87	0.21

HR15N Scale

91	0.23
73	0.34

HR15T Scale

88	0.22
73	0.35

HR15W Scale

94	0.42
84	0.26

HR15X S Scale

96	0.45
83	0.38

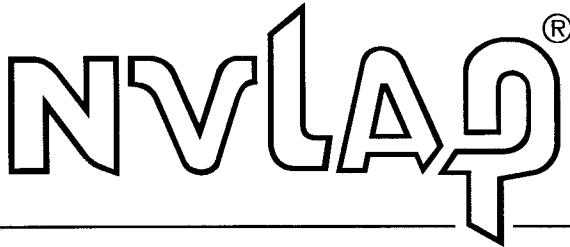
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DAVID L. ELLIS CO., INCORPORATED

HR15Y Scale

98	0.14
90	0.31

HR30N Scale

78	0.16
47	0.22

HR30T Scale

73	0.17
41	0.45

HR30W Scale

86	0.40
44	0.76

HR30X Scale

92	0.16
66	0.82

HR30Y Scale

96	0.22
80	0.14

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HR45N Scale

67	0.11
27	0.46

HR45T Scale

59	0.27
10	0.46

HR45W Scale

79	0.61
18	0.75

HR45X Scale

88	0.11
49	0.52

HR45Y Scale

94	0.16
69	0.44

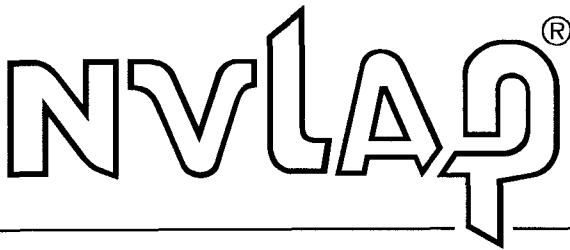
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Field Service Indirect Verification of Hardness Testing Machines

<i>Hardness Scale and Range</i>	<i>Best Uncertainty (\pm) in Rockwell Points^{notes 1,2}</i>	<i>Remarks</i>
---------------------------------	---	----------------

HRA Steel Scale

80	0.15
64	0.25

HRB Scale

84	0.61
40	0.96

HRC Scale

65	0.31
45	0.36
26	0.40

HRD Scale

71	0.10
46	0.11

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HRE Scale

100	0.70
77	0.45

HRF Scale

96	0.71
78	0.55

HRG Scale

91	0.26
44	0.84

HRH Scale

102	0.42
84	0.67

HRK Scale

96	0.38
54	0.85

HRL Scale

123	0.13
102	0.49

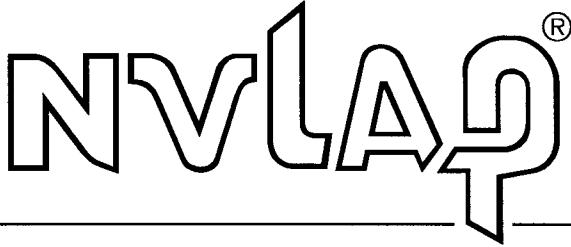
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HRM Scale

118	0.64
82	0.57

HRP Scale

112	0.72
59	0.89

HRR Scale

127	0.22
113	0.41

HRS Scale

124	0.08
100	0.84

HRV Scale

121	0.28
87	0.49

HR15N Scale

91	0.25
73	0.41

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HR15T Scale

88	0.24
73	0.37

HR15W Scale

94	0.42
84	0.26

HR15X S Scale

96	0.45
83	0.49

HR15Y Scale

98	0.16
90	0.33

HR30N Scale

78	0.27
47	0.27

HR30T Scale

73	0.20
41	0.80

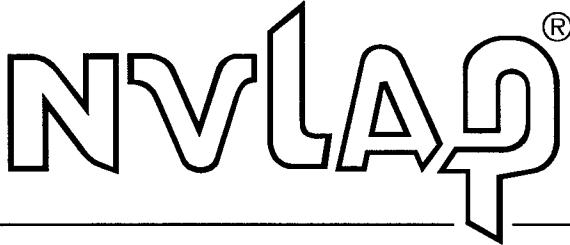
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HR30W Scale

86	0.41
44	1.08

HR30X Scale

92	0.20
66	0.96

HR30Y Scale

96	0.35
80	0.28

HR45N Scale

67	0.12
27	0.57

HR45T Scale

59	0.29
10	0.64

HR45W Scale

79	0.64
18	0.83

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HR45X Scale

88	0.13
49	0.73

HR45Y Scale

94	0.18
69	0.50

-
1. Represents an expanded uncertainty using a coverage factor, k=2.
 2. The standardized test blocks used for verification are calibrated at the David L. Ellis Company, Inc. Hardness Calibration Laboratory in accordance with ASTM E18-00 section C using N.I.S.T. Rockwell HRC standards reference materials (SRM) 2810, 2811, and 2812. All other Rockwell scales are traceable to David L. Ellis Co., Inc. hardness levels through laboratory standardizing machines. The standardizing machines are directly verified according to ASTM E18-00 using devices that are traceable to N.I.S.T. either directly or through a NVLAP approved laboratory.

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